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PINGUICULA VULGARIS L. IN NEW HAMPSHIRE

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BUTTERWORT is known from two stations in New Hampshire. The junior author of this paper, as a case in point, collected it on Cannon Mountain in Franconia on May 30, 1948. An earlier record from this same place is the specimen in the New England Botanical Club Herbarium, collected by G. Ledyard Stebbins, on May 25, 1929, bearing the collection number 551. It occurs there in a limited area on wet ledges at the head of the talus slope. However, of perhaps greater contemporary interest because of the historic associations and the involved series of events and personalities leading to its rediscovery, is the Mt. Willard Station. In the Herbarium of the University of New Hampshire is a solitary, but well preserved, specimen of Butterwort from New Hampshire collected by C. H. Hitchcock, at "Hitchcock's Notch, White Mountains about 1875". Knowing also of a collection of *Pinguicula* from "Butterwort Flume, Mt. Willard" by Edwin Faxon in the Herbarium of the New England Botanical Club, the authors ventured to prepare a brief article on the subject for RHODORA. This was forwarded to Dr. S. K. Harris, who immediately called attention to Sweetser's comments on Hitchcock Flume and brief mention of Butterwort Flume in his "White Mountains" ed. 11, 1891. p. 152. However, Dr. Harris, thinking it possible with proper assistance to shed more light on the subject, talked with Professor A. S. Pease, who promptly recalled an article in the December, 1945 issue of *Appalachia* entitled "Mt. Willard Ramblings" by Henry E. Childs. A map on page 446 shows both Hitchcock and Butterwort Flumes and the text deals in part with the failure of Mr. Childs, while exploring Mt.

Willard, to locate anything suggesting Butterwort. He was, however, fairly clear in his directions to Butterwort Flume and he also pointed out that Hitchcock himself in his *Geology of New Hampshire* had published a map showing both flumes.

An inspection of C. H. Hitchcock's *Geology of New Hampshire*, Vol. II, disclosed the aforementioned map opposite p. 170 and a rather thorough discussion of Mt. Willard on pp. 165–173 with consideration of the Flumes on pp. 171–173. Hitchcock wrote as follows concerning Butterwort Flume. "The first flume is only a short distance beyond. It is not perceptible from the top of the cliff. Its course is determined by a trap dyke dipping 65° S, 10° W, about 5 feet wide. For about 200 feet the excavation into the mountain may average a depth of twenty feet and the inclination of the floor is too steep to allow one to descend or ascend in it . . . In this flume, I found, growing rather sparingly, a beautiful flower, the *Pinguicula vulgaris* or Butterwort. It is said to range from "western New York to Lake Superior and northward." None of the botanists who have explored the White Mountains for plants speak of it; so it must have escaped their notice. In memory of this plant, therefore, I will call the chasm the "Butterwort Flume" to distinguish it from the one farther north."

Considering themselves well fortified with the above information the authors in company with Alexander Lincoln, Jr., on June 21, 1953, proceeded rather directly and with little of adventure to the base of Butterwort Flume where the first *Pinguicula* was encountered. From this point on, however, the senior author, who is not adapted to rock climbing, had to be assisted. This point is mentioned not to entice rock climbers to the place, for the flume would present no real challenge to them, but to discourage the uninitiated who would run severe risks, particularly if the rocks were wet. In the nearly 72 years since the last reported visit by a botanist, that of Faxon in 1881, the *Pinguicula* seems to have held its own. It was in full flower at the time of our visit.

The junior author, becoming separated from the other two members of the party, negotiated the other longer chasm, Hitchcock Flume, on the same face of Mt. Willard, but farther to the north and higher up. This is a deep narrow flume with vertical

walls, too dark for much vegetation to grow. No Butterwort was seen, which makes it entirely likely that the University of New Hampshire specimen was collected also from Butterwort Flume and not from the one now called "Hitchcock Flume."

In the Jesup Herbarium at Dartmouth, there is a specimen collected at "Butterworth Flume, Mt. Willard, New Hampshire, 1875" by Hitchcock. According to A. S. Pease, in a recent communication to the authors, in the Amherst College Herbarium (now deposited at the University of Massachusetts), there is a sheet with the following inscription, "Pinguicula vulgaris L. Mt. Willard, New Hampshire, July 1, 1875, Hitchcock's Ravine, a new discovery—Professor Charles H. Hitchcock." Presumably "Hitchcock's Notch" and "Hitchcock's Ravine" on labels refer to Butterwort Flume and not to the true Hitchcock Flume.

In the Gray Herbarium, is a specimen of E. and C. E. Faxon from Butterwort Flume (the same date and probably the same collection as the New England Botanical Club specimen of E. Faxon) and one from the collection made by Agassiz, with the none too helpful information on the label "White Mountains of New Hampshire."

On July 26, 1953, Mr. Theodore W. Wells, who teaches at Milton Academy, ascended Butterwort Flume with a companion. His comments, in part, in a letter written to the senior author are worth recording here, "The lower two-thirds of the Mt. Willard crevice are filled with stream detritus and, therefore, present no problem to the climber. The final third, however, is steeper and contains nothing but solid traprock, made more treacherous by moisture and plant encrustations. At the base of this passage—Butterwort Flume proper—*Paronychia argyrocoma* var. *albimontana* may be found on the north side, c. el. 2200 feet. In the flume one at once observes that the trap dike dips about 75° S, such, that the south wall is overhanging and resultingly darker and damper. Even from the base of the flume the conspicuously yellow-green leaves of *Pinguicula* are seen on the south wall and in the bed of the stream. The plant increases in frequency up the hundred or so feet of the flume, which terminates abruptly in a cave with a prominent caprock (c. el 2300 feet). The presence of *Pinguicula*, a calciphile, is

probably explained in part by the fact that the chemical erosion of the calcic feldspars and ferromagnesian minerals in the basalt by water and carbon dioxide yields some quantity of calcium carbonate."

In summary the following collections of Butterwort have been made at Mt. Willard. 1. Hitchcock, 1875 (specimens at the University of Massachusetts; University of New Hampshire and Dartmouth College); 2. E. and C. E. Faxon (specimens at the Gray Herbarium, and the New England Botanical Club Herbarium, the latter with only the name of E. Faxon on the label); 3. Hodgdon, Steele and Lincoln, June 21, 1953; 4. Theodore Wells, July 26, 1953.

The chronological picture would now be clear except for the Agassiz specimen, in the Gray Herbarium. As Professor Pease has pointed out to us, Louis Agassiz died in 1873, two years before Hitchcock's classical visit to Butterwort Flume. Was he aware of the Mt. Willard *Pinguicula* before Hitchcock's time, or did Agassiz discover the station of *Pinguicula* at Cannon Mountain which is after all more accessible than that in Crawford Notch?

In our opinion the statement of range of *Pinguicula vulgaris* on p. 1308, in the new Gray's Manual is misleading in that it seems to indicate that this plant is not found in the state of New Hampshire. We suggest that the range given on page 1308 in the "Manual" be amended following the words "and locally to" to read "n. New Hampshire" following which presumably the statement of range would continue as there given.—UNIVERSITY OF NEW HAMPSHIRE, DURHAM, NEW HAMPSHIRE AND ST. MARY'S-IN-THE-MOUNTAINS, LITTLETON, NEW HAMPSHIRE.